

Appl. No.: 10/763,522
Amdt. dated 09/13/2005
Reply to Office action of 07/12/05

REMARKS/ARGUMENTS

The Examiner rejects Claims 1-6 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 3,789,337 to Sheppard in view of U.S. Patent No. 5,367,760 to Terlop et al. The Examiner also rejects Claims 7-9 under 35 U.S.C. § 103(a) as being unpatentable over Sheppard in view of Terlop and further in view of U.S. Patent No. 5,430,426 to Griebel.

Applicants have amended independent Claim 1 to further patentably distinguish the cited references. Dependent Claim 9 has been amended to recite proper dependency from Claim 1. Therefore, in light of the claim amendments and subsequent remarks, Applicants respectfully request reconsideration and allowance of the claims.

A. Independent Claims 1, 12, and 23

Independent Claim 1 has been amended for clarification and to further distinguish each of the cited references, taken alone or in combination. Claim 1 recites that the electromagnet comprises at least one winding disposed circumferentially about a core such that the winding extends at least one revolution around the core. Claim 1 has been amended to recite that the electromagnet includes at least one spacer disposed circumferentially about the core and between at least pair of windings, wherein the spacer defines a plurality of channels therein, and wherein the channels are configured to distribute a coolant medium at least circumferentially about the at least one of the pair of windings. Thus, the channels could not only distribute the coolant medium circumferentially about a plurality of windings, but also longitudinally along the axis of the core.

B. The Sheppard and Terlop Patents

Sheppard discloses an insulation structure for an electrical apparatus. For example, Figure 2 of Sheppard illustrates a transformer that includes a winding formed by a plurality of turns or turn groups that are disposed concentrically about a magnetic core leg. The turn groups are separated by vertical spacing members that provide channels for the flow of a fluid coolant therethrough.

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Terlop discloses a method of making a narrow profile transformer. In particular, Terlop discloses a transformer that includes primary and secondary windings. As shown in Figure 17 of Terlop, the transformer includes elongated spacers that are spirally wound between the primary and secondary windings. The spacers are used in forming the primary and secondary windings. The spacers are about the same width as insulation means that is subsequently inserted between the primary and secondary windings when the spacers are removed (See Figure 25). Each of the primary and secondary windings includes tubes for passing fluid through respective windings.

C. The Rejection of Independent Claim 1 under 35 U.S.C. § 103(a) is Overcome

Applicants submit that independent Claim 1 is distinguishable from each of the Sheppard and Terlop patents, taken individually or in combination. The Examiner acknowledges that Sheppard does not disclose that the spacing members are disposed circumferentially about the core and include channels defined therein. The Examiner relies on Terlop as disclosing this particular recitation of independent Claim 1. In particular, the Examiner cites Figures 18, 25, and 26 of Terlop. However, Figure 18 of Terlop only depicts primary and secondary windings with no spacer therebetween, while Figure 26 shows the primary winding having cooling tubes that extend through each of the turns of the primary winding. Furthermore, Figure 25 illustrates a transformer having insulation disposed between primary and secondary windings. Although Terlop discloses insulation between the primary and secondary windings, the insulation does not define channels for distributing a coolant medium therethrough. Rather, the primary and secondary windings of Terlop define tubular fluid passages that extend within respective primary and secondary windings. Moreover, Terlop also discloses utilizing longitudinal spacers between the primary and secondary windings (See Figure 17), but the spacers are only used to form the primary and secondary windings. In this regard, the spacers are subsequently removed and replaced with the insulation and serve no cooling function. As such, Terlop does not disclose spacers including channels defined therein, as recited by independent Claim 1.

As neither reference discloses at least one spacer disposed circumferentially about the core and between at least pair of windings, wherein the spacer defines a plurality of channels that are configured to distribute a coolant medium at least circumferentially about the at least one of

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the pair of windings, the combination of the references also fails to teach or suggest independent Claim 1 of the present application. Therefore, the rejections of independent Claim 1 under 35 U.S.C. § 103(a) over the cited references are overcome. As such, it is submitted that dependent Claims 2-9 are allowable for at least those reasons discussed above with respect to independent Claim 1.

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CONCLUSION

In view of the amendments and remarks presented above, Applicants submit that the present application is in condition for allowance. As such, the issuance of a Notice of Allowance is therefore respectfully requested. In order to expedite the examination of the present application, the Examiner is encouraged to contact Applicants' undersigned attorney in order to resolve any remaining issues.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required therefore (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,



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Lisa L. Rone

9/13/05
Date